



The Effect of Nutrition Education Using Leaflet and Video Media on Increasing Knowledge of Balanced Nutrition in Adolescents at SMA Negeri 2 Lintongnihuta

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Abstract: Adolescence is a transition period from children to adults and adolescence experiences rapid growth and development that requires optimal nutrition. A healthy teenager is a teenager who has a good and balanced nutritional status. Knowledge can influence adolescent attitudes in consuming balanced nutritional foods. So this study aims to increase adolescent knowledge regarding balanced nutrition using leaflets and videos in the hope that adolescents can change attitudes and practices of adolescents to pay more attention to nutritional status and consume balanced nutrition according to their individual needs. This study used a quasi-experimental method with a pretest-post test two group design. The selected sample is 46 people aged 16-18 years. Data collection and collection were carried out using leaflets, videos, and questionnaires. The data obtained were tested using the T test. The results showed that there was an increase in knowledge of balanced nutrition in adolescents using leaflet media, namely the good category (95.7%) and the video media group increased to the good category (91.3%). The results of the bivariate analysis showed that there was an increase in knowledge of balanced nutrition after providing nutrition education using leaflets and video media (p value 0.000). The results of the independent T test showed that there was no significant difference regarding the effectiveness of leaflet and video media (p value 0.197).

Key Words: Adolescence, balanced nutrition, knowledge, leaflets, video

1. INTRODUCTION

Adolescence occurs rapidly which causes the need for increased fulfillment of nutritional needs to achieve optimal and maximum growth. Adolescents need higher nutrients to support growth and development processes that are influenced by knowledge and diet (Sagala & Noerfitri, 2021). Healthy adolescents are not only seen from the physical but also cognitive, psychological and social. The adolescent period is the second window of opportunity that is very sensitive in determining the quality of life as an adult individual and also in producing the next generation.

Knowledge and attitudes of balanced nutrition practices can affect the nutritional status of adolescents (Nuryani, 2019). According to Riskesdas regarding the prevalence of undernutrition status in adolescents aged 16-18 years in 2010, 2013 and 2018, namely 7.1%, 7.5% and 8.1 %. Overweight or overweight nutritional status which is calculated



based on BMI/U in adolescents aged 16-18 years in 2010 and 2013 there was an increase in the prevalence of obesity from 1.4% to 7.3% and increased again in 2018 which was 13.5%. So in this case, intervention is needed to improve the nutritional status of adolescents, especially at the age of 16-18 years. The prevalence of nutritional status according to the 2018 North Sumatra Riskesdas report, in the Humbang Hasundutan Regency area in adolescents aged 16-18 years is 19.81% fat nutritional status. These data represent that the nutritional status in Humbang Hasundutan district requires intervention to make the nutritional status of adolescents good.

One of the supporting factors for achieving good nutritional status among adolescents is providing knowledge about balanced nutrition which can be used as a guideline to meet good nutritional status and support optimal growth and development. Based on the results of a preliminary study conducted on January 23, 2022 at SMA Negeri 2 Lintongnihuta, it showed that only 1 out of 32 students knew the Guidelines for Balanced Nutrition and as many as 23 out of 32 people (<60%) had not acted in accordance with the Guidelines for Balanced Nutrition, and 9 of 32 people (>60%) behaved according to the Balanced Nutrition Guidelines. Knowledge of balanced nutrition among high school students is still low and can only be seen from the research conducted by (Dwi Jayanti & Elsa Novananda, 2017) which shows that 54% of respondents have sufficient knowledge, and 16% of respondents have less knowledge. Likewise, the results of research (Fitriani, 2020) by reviewing the knowledge that is still lacking 40.7%. From the two studies that have been carried out by researchers, it can be concluded that interventions are still needed to increase knowledge of balanced nutrition, especially among adolescents in high school.

Increasing knowledge related to balanced nutrition for adolescents can change attitudes to consume foods with balanced nutrition (Ramadhani, *et.al*, 2021). One of the interventions that will be given is providing balanced nutrition education by conveying information related to balanced nutrition. Media is needed to make it easier for respondents to understand the material when the process of providing nutrition education is carried out (Shofia Lathifa, 2020). The media that will be used in the delivery of information in this research are videos and leaflets. According to research conducted by (Saputra, 2016) that there is an increase in knowledge by using audio-visual media (video) and leaflets.

2. METHODS

Study Design

This study design uses a quasy-experimental method with a pretest-post test two group design. The quasi-experimental method is a form of experiment that is not randomized or the placement of sample members in the experimental and control groups is carried out randomly (Natoadmodjo, 2018). Pretest-post-test two group design is a research design in which two different groups are given different treatments. This research was conducted from January to May 2022.

Study Participants

Respondents in this study were adolescents aged 16-18 years who attended SMA Negeri 2 Lintongnihuta. sampling using simple random sampling by way of lottery. The respondents needed are 46 people who will be divided into 2 groups, namely the video group as many as 23 people and the leaflet group as many as 23 people. Each group will be

given knowledge related to balanced nutrition using the media according to the name of the group.

Data Collection

The instruments used in this study were pretest forms, posttest forms, leaflets, videos, statistical data processing software namely SPSS, and Microsoft Office Excel software. Each group (leaflet and video) will undergo an initial test (pre-test) for 20 minutes. Then leaflets will be given for the leaflet group and video shows for the video group. The duration of the video is 3.35 minutes and will be played 2 times then enter a question and answer. After the question and answer, the video will be played again before the posttest. For the leaflet group, they were given 10 minutes to read the leaflet and the researcher would explain a little about the contents of the leaflet, then ask questions for 5 minutes before filling out the posttest. After 4 days, respondents were given a posttest questionnaire to fill in for 20 minutes.

Statistical Analysis

Data analysis is divided into 2, namely univariate analysis and bivariate analysis which are summarized by percentage, frequency, mean, standard deviation, and sigma score. Researchers also used the paired T test to identify the effect of providing balanced nutrition education using video media and leaflet media. statistically significant that is p-value <0.05 using SPSS. As well as using an independent T test to identify the effectiveness of the media used.

Ethical Approval

This research has received ethical approval from the Health Research Ethics Commission of UPN Veterans Jakarta Number 257/V/2011/KEPK. All respondents in this study had signed an informed consent prior to data collection. The study was conducted the guidelines of Kementerian Kesehatan RI 2018.

3. RESULTS AND DISCUSSION

Subject's Characteristics

The most respondents aged 16 years were 30 people (65.2%) and the highest level of education was in grade 11 as many as 20 people (43.5%). Respondents who dominate this study are male with a total of 25 people (54.3%). The father's last education was high school as many as 18 people (39.1%) with the most occupation, namely self-employed 18 people (39.1%). The most recent education of mothers is Bachelor (S1) as many as 18 people (39.1%) with the most work being PNS 16 people (34%). In this study, there were still more respondents who had never attended counseling related to balanced nutrition, amounting to 31 people (67.4%) [Table 1].

Table 1. Characteristics Subject

Variabel	Groups			
	Leaflet		Video	
	n	%	n	%
Age group (year)				
16 tahun	13	56,5	17	73,9
17 tahun	8	34,8	3	13,0
18 tahun	2	8,7	3	13,0
Gender				
Girls	11	47,8	14	60,9
Boys	12	52,2	9	39,1
Class				
10	5	21.7	4	17.4
11	8	34.8	12	52.2
12	10	43.5	7	30.4
Parents' Last Education				
Father				
SMP	0	0	2	8.7
SMA	8	34.8	10	43.5
D3	1	4.3	0	0
S1	12	52.2	5	21.7
S2	2	8.7	4	17.4
Privacy	0	0	2	8,7
Mother				
SMP	0	0	1	4.3
SMA	9	39.1	8	34.8
D3	4	17.4	5	21.7
S1	9	39.1	9	39.1
S2	1	4.3	0	0
Parents' job				
Father				
Pns	9	39.1	7	30.4
Self-employed	9	39.1	9	39.1
Farmer	4	17.4	4	17.4
Retired	1	4.3	0	0
Driver	0	0	1	4.3
Privacy	0	0	2	8,7
Mother				
Housewife	8	34.8	5	21.7
civil servant	9	39.1	7	30.4
Self-employed	4	17.4	2	8.7
Farmer	2	8.7	5	21.7
Tocologist	0	0	3	13.0
Nurse	0	0	1	4.3

Respondents exposed to balanced nutrition

Never	15	65,2	16	69.6
Once	8	34,8	7	30.4
n	23	100	23	100

Distribution Data Category Balanced Nutrition Knowledge

Based on table 2, it can be seen the distribution of balanced nutrition knowledge in the leaflet media group. Before education was conducted, the most pretest results were in the sufficient category as many as 17 people (73.9%) and the others were still lacking with knowledge of balanced nutrition as many as 3 people (13%) and there were already respondents who had good knowledge as many as 3 people (13%). Meanwhile, after being given balanced nutrition education, there was an increase that the most balanced nutrition knowledge category was the good category as many as 22 people (95.7%) and only 1 person (4.3%) with sufficient knowledge category and there were no respondents who knowledge is low category.

The category in the video media group showed that the pretest scores in the video group were more in the sufficient category as many as 19 people (82.6%), the other less category as many as 4 people (17.4%) and those with good knowledge regarding balanced nutrition did not yet exist. However, after being given balanced nutrition education, it can be seen that the most knowledge category is the good category as many as 21 people (91.3%), and the other less category as many as 1 person (4.3%) as much as the sufficient category as many as 1 person (4.3 %).

Table 2. Distribution Data Category Balanced Nutrition Knowledge

Knowledge	Pretest		Posttest	
	Leaflet (%)	Video (%)	Leaflet (%)	Video (%)
Not enough	13.0	17.4	0	4.3
Enough	74.0	82.6	4.3	4.3
Well	13.0	0	95.7	91.4

Differences in Balanced Nutrition Knowledge Before and After Education Using Leaflet Media

Based on table 3, the average value of respondents before being given balanced nutrition education using leaflet media (pretest) was 59.83 with a standard deviation of 11.595. However, after being given balanced nutrition education to respondents using leaflet media, there was an increase in the average value of respondents, which was 86.61. The difference (Δ score) of the average value of the pretest with the average value of the posttest is 26.78 with a standard deviation of 11.595. The results of statistical tests obtained p value of 0.000 <0.05. So it can be concluded that there is an effect of providing education using leaflet media to increase knowledge of balanced nutrition. According to the results of research conducted by (Indah Asyri Rokhmawati, 2015), showed that the average score of previous knowledge on nutrition counseling was 19.47%, the average knowledge score

after nutrition counseling increased to 22.73%. So the conclusion is nutrition education using leaflet media can increase knowledge.

Table 3. Differences in Balanced Nutrition Knowledge Before and After Education Using Leaflet Media

Leaflet	Mean	SD	Min-Max	Δscore	P-Value
Pre-test	59,83	11,019	40-76	26,783	0,000
Post-test	86,61	5,983	72-100		

Differences in Balanced Nutrition Knowledge Before and After Education Using Video Media

Based on the results of the analysis that has been carried out using the paired test statistical test, the average pretest value of the respondents is 56.78 with a standard deviation of 10.561. The highest score among respondents who have filled out the pretest questionnaire is 72 and the lowest score is 36. Meanwhile, the average value after balanced nutrition education using video media increased to 83.13. The difference (Δscore) in the average value before and after balanced nutrition education is 26.78 with an SD of 13,995. The statistical test resulted in a P Value of 0.000 (<0.05). So it can be concluded that there is an effect of providing education using video media to increase knowledge of balanced nutrition.

This is also in line with research conducted by (Putri, *et.al*, 2021) which shows that there is an increase in the average value before and after being given education using video media, from the mean value of 8.11 to 12.08 with a p value of 0.000. So it can be stated that there is an effect of providing education using video media to increase knowledge.

Table 4. Differences in Balanced Nutrition Knowledge Before and After Education Using Video Media

Video	Mean	SD	Min-Max	Δ score	P-Value
Pre-test	56,78	10,561	36-72	26,783	0,000
Post-test	83,13	11,246	44-96		

The success of health education is always seen from the media used. Interesting and good educational media spreads the uniqueness of the intended subject, and one of the interesting media is video. Educational videos are audiovisual media that can be used to convey information related to the knowledge to be conveyed to the public. As an educational medium, video provides a more real display of information, so that it is easy to accept, can be repeated, or discontinued according to the needs of the people who use it. Learning using video media can achieve higher success in delivering information and can improve results and better learning processes (Mawan, 2017).

The Effectiveness of Balanced Nutrition Education Using Leaflet and Video Media

Based on the results of table 5, the average value of the posttest in the Leaflet group is 86.61 with a standard deviation of 5.983. Meanwhile, the average posttest score for the video media group was not much different, namely 83.13 with a standard deviation of 11.246. The difference in the average score between the posttest scores for the leaflet group

and the video media group was 3.48. The highest value of posttest results between the two groups is the posttest value using leaflet media. However, it can be seen from the statistical test results that the p value is $0.197 > 0.05$. So it can be concluded that there is no difference in the effectiveness of leaflet media and video media on increasing knowledge of balanced nutrition.

Table 5. The Effectiveness of Balanced Nutrition Education Using Leaflet and Video

Posttest	n	Mean	SD	Min-Max	Δ score Mean	P value
Leaflet	23	86,61	5,983	72-100	3,478	0,197
Video	23	83,13	11,246	44-96		

Leaflet media provides a good increase in knowledge of adolescents in adding insight related to balanced nutrition. Media leaflets can also be carried everywhere and can be read over and over again so that readers will remember the information conveyed in the media better. Providing information using video media also provides very good benefits, especially in increasing knowledge related to balanced nutrition. Overall, video media can provide a good learning experience because teenagers can hear and see the video until it is finished clearly. So each media has its own advantages that attract the attention of teenagers in getting information (Sari, 2020).

Learning with video is very good because it can be accessed through 2 human sensory sensors, namely through the eyes and ears. About 75% of learning outcomes are obtained through sight, 13% through hearing, and about 12% through other senses (Eliham, 2020). While learning using video only accesses 1 human sense, namely through the eyes. However, even with the eyes, with the advantages of leaflet media which contains short, clear and concise sentences and contains pictures that are in accordance with the contents of the leaflet, leaflets can stimulate the imagination of the reader. That way, it's also easy for readers to understand and remember because leaflets can be carried and read over and over again (Maulana, 2017).

4. CONCLUSION

Providing balanced nutrition education using leaflets and video media can increase nutritional knowledge among adolescents at SMA Negeri 2 Lintongnihuta. Both media have their respective advantages and disadvantages that can determine the effectiveness of each. In this study, it showed that there was no significant difference in the effectiveness of leaflet media and video media. However, the highest posttest value was using leaflet media.

CONFLICT OF INTEREST

The authors declare that there were no conflicts of interest in this study.

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